UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO.
10/619,890	07/15/2003	David M. Forman	BRI/023	7696

7590 12/19/2003

Thomas J. Brindisi, Esq.
Suite B
20 28th Place
Venice, CA 90291

EXAMINER	
BLACKNER, HENRY A	
ART UNIT	**PAPER NUMBER**
3641	

DATE MAILED: 12/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/619,890	FORMAN ET AL.	
	Examiner	Art Unit	
	Henry A. Blackner	3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 July 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

1. CEN Document: prCEN/TS 13763-27 (NMP 898/FABERG N 0090 D/E) E 2002-06-19, paragraph 23, line 12.

Drawings

The drawings are objected to under 37 CFR 1.83(a) because they fail to show that pin 13 is grounded, figure 4, as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 18' (figure 2) and 21 (figure 3). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office

action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informality: In the phrase "flag indicates whether or not the device has been *been* detected on the bus", paragraph 46 lines 4-5; suggest deleting the duplicate term "been", for clarity.

Appropriate correction is required.

Claim Objections

Claims 2-15 and 18-20 are objected to because of the following informalities:

1. In regards to claims 2-11, the preamble "The device of claim", should read as "The *pyrotechnic* device of claim".
2. In regards to claim 4, the term "circuitry", line 2, was previously identified as an "*electronic* circuitry".
3. In regards to claim 12, the term "pyrotechnic device", line 5, was previously identified as an "*electronic* pyrotechnic device".
4. In regards to claims 13-15, the preamble "The system of claim", should read as "The *electronically connected* system of claim".
5. In regards to claim 15, the term "device", line 1, was previously identified as an "*electronic pyrotechnic* device".
6. In regards to claim 18, the term "pyrotechnic device", line 1, was previously identified as an "*electronic* pyrotechnic device".

7. In regards to claims 19 and 20, the term "pyrotechnic device", line 3, was previously identified as an "*electronic* pyrotechnic device".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-20 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. Patent No. 6,166,452 to Adams.

In regards to claim 1, Adams clearly discloses, a pyrotechnic device having firing-readiness diagnostics, comprising an igniter (10) and electronic circuitry (59) configured and/or programmed to perform one or more firing-readiness diagnostics on the pyrotechnic device, in figures 2, 3, 5-7, and 10, column 2 lines 59-60, column 3 lines 62-67, column 4 lines 1-12, lines 14-16, lines 55-57, and lines 64-67, column 5 lines 1-6 and lines 24-32.

In regards to claim 2, Adams inherently discloses, wherein the igniter includes an ignition element (55), and the electronic circuitry comprises a resistance check module, in the rejection of corresponding parts of claim 1, above.

In regards to claim 3, Adams inherently discloses, wherein the igniter includes an ignition element (55), and the electronic circuitry comprises a continuity check module, in the rejection of corresponding parts of claim 1, above.

In regards to claim 4, Adams clearly discloses, wherein the device includes an ASIC that contains the circuitry, in the rejection of corresponding parts of claim 1, above.

In regards to claim 5, Adams clearly discloses, wherein the device is an electronic detonator, the igniter is hermetically sealed, and the ignition element is a bridgewire, in figures 1-5, column 2 lines 59-60 and lines 66-67, column 3 lines 1-6, lines 11-54, column 4 lines 25-34, column 6 lines 9-33 and lines 40-51.

In regards to claim 6, Adams inherently discloses, wherein the igniter includes a firing capacitor (56), and the electronic circuitry is configured and/or programmed to verify that the firing capacitor has a capacitance above or below a certain value, in figure 7, column 4 lines 59-61, and column 5 lines 24-32.

In regards to claim 7, Adams inherently discloses, wherein the igniter includes a firing capacitor (56), and the electronic circuitry is configured and/or programmed to verify that the firing capacitor has a capacitance above a first value and below a second value, in figure 7, column 4 lines 59-61, and column 5 lines 24-32.

In regards to claim 8, Adams clearly discloses, wherein the device is an electronic detonator, in figures 1-5, column 2 lines 59-60 and lines 66-67, column 3 lines 1-6, lines 11-54, column 4 lines 25-34, column 6 lines 9-33 and lines 40-51.

In regards to claim 9, Adams inherently discloses, wherein the igniter further includes an ignition element (55), and the electronic circuitry includes a resistance check module, in the rejection of corresponding parts of claim 1, above.

In regards to claim 10, Adams inherently discloses, wherein the igniter further includes an ignition element (55), and the electronic circuitry includes a continuity check module, in the rejection of corresponding parts of claim 1, above.

In regards to claim 11, Adams clearly discloses, wherein the device is an electronic detonator, the igniter is hermetically sealed, and the ignition element is a bridgewire, in figures 1-5, column 2 lines 59-60 and lines 66-67, column 3 lines 1-6, lines 11-54, column 4 lines 25-34, column 6 lines 9-33 and lines 40-51.

In regards to claim 12, Adams clearly discloses, an electronically connected system comprising: a master device (ECU), a bus connected to the master device, and a plurality of electronic pyrotechnic devices connected to the bus, each of the pyrotechnic devices comprising an igniter (10) and electronic circuitry (59) configured and/or programmed to perform one or more pyrotechnic device firing-readiness diagnostics, in figures 2, 3, 5-7, and 10, column 2 lines 59-60, column 3 lines 62-67, column 4 lines 1-12, lines 14-16, lines 55-57, and lines 64-67, column 5 lines 1-6, lines 13-18, and lines 24-32.

In regards to claim 13, Adams inherently discloses, wherein the igniter includes a firing capacitor (56), and the electronic circuitry is configured and/or programmed to verify that the firing capacitor has a capacitance above a first value and below a second value, in figure 7, column 4 lines 59-61, and column 5 lines 24-32.

In regards to claim 14, Adams inherently discloses, wherein the igniter further includes an ignition element (55), and the electronic circuitry includes a continuity check module, in the rejection of corresponding parts of claim 12, above.

In regards to claim 15, Adams clearly discloses, wherein the device is an electronic detonator, the igniter is hermetically sealed, and the ignition element is a bridgewire, in figures 1-5, column 2 lines 59-60 and lines 66-67, column 3 lines 1-6, lines 11-54, column 4 lines 25-34, column 6 lines 9-33 and lines 40-51.

In regards to claim 16, Adams clearly discloses, a method of operating a system of electronic pyrotechnic devices, comprising the following steps: a) providing a master device (ECU) and a bus connected to the master device, b) connecting a plurality of electronic pyrotechnic devices to the bus, c) issuing one or more commands from the master device on the bus, and d) after step c), performing one or more firing-readiness diagnostics on the system, in figures 2, 3, 5-7, and 10, column 2 lines 59-60, column 3 lines 62-67, column 4 lines 1-12, lines 14-16, lines 19-24, lines 55-57, and lines 64-67, column 5 lines 1-6, lines 13-18, lines 24-35, lines 40-43, and lines 51-66, and column 6 lines 1-4.

In regards to claim 17, Adams inherently discloses, wherein step d) includes the step of performing one or more checks selected from the following group: 1) an incompatible attached device check, 2) an ignition element check, and 3) a firing capacitor capacitance check, in the rejection of corresponding parts of claim 16, above.

In regards to claim 18, Adams clearly discloses, wherein each of the pyrotechnic devices comprises an igniter (10) and electronic circuitry (59) configured and/or programmed to perform one or more pyrotechnic device firing-readiness diagnostics, in the rejection of corresponding parts of claim 16, above.

In regards to claim 19, Adams clearly discloses, the method further comprising the step of performing one or more firing-readiness diagnostics on the pyrotechnic devices before or during step c), in the rejection of corresponding parts of claim 16, above.

In regards to claim 20, Adams clearly discloses, the method further comprising the step of issuing information to the master device from any pyrotechnic device that fails the firing-readiness diagnostics, in the rejection of corresponding parts of claim 16, above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following documents show the state of the art in the field of Firing-Readiness Diagnostic of a Pyrotechnic Device such as an Electronic Detonator.

U.S. Patent No. 6,647,886 B2 to Darraba et al.

U.S. Patent No. 6,584,907 B2 to Boucher et al.

U.S. Patent No. 5,825,098 to Darby et al.

U.S. Patent No. 5,460,093 to Prinz et al.

U.S. Patent No. 5,014,622 to Jullian

Foreign Patent No. WO 93/18366 to Shann

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry A. Blackner whose telephone number is 703-305-4799. The examiner can normally be reached on 09:15 - 17:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9326.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-5771.

hab
14 December 2003

MICHAEL J. CASTLE
SUPERVISORY PATENT EXAMINER